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EXAMINER	
THOMAS, SHANE M	

ART UNIT	PAPER NUMBER
2186	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/726,812	ZHU, QIMING	
	Examiner	Art Unit	
	Shane M. Thomas	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30 and 32-34* is/are rejected.

7)☒ Claim(s) *31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/14/06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Prosecution of this application has been assumed by Examiner Shane Thomas.

This Office action is responsive to the amendment filed 6/1/2006. Claims 1-31 are currently pending, where claims 1-27 were previously presented and claims 28-34 are new. Applicants' arguments and amendments to the claims have been carefully considered, but they are not persuasive and do not place the claims in condition for allowance. Accordingly, this action has been made FINAL.

Excerpts from all prior art references cited in this Office action shall use the shorthand notation of (column # / lines A-B) to denote the location of a specific citation. For example, a citation present on column 2, lines 1-6, of a reference shall herein be denoted as "(2/1-6)."

Claim Objections

Claims 2 and 3 are objected to because of the following informalities:

As per claim 2, the term --the physical device object-- should be amended to --the second physical device object--, to reflect the amendment to the term as drafted in base claim 1.

As per claim 3, the term --the physical device object-- should be amended to --the first physical device object--, to reflect the amendment to the term as drafted in base claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As amended, claims 1-14 recite a --storage disk device driver-- contained on a --computer readable medium--; however, Applicant's originally filed specification contains no such embodiment and Applicant's remarks filed on 6/1/2006 under the heading "Rejection under 35 U.S.C. §101" does point to a section of the specification that teaches such a computer readable medium containing such a driver. Applicant is reminded of 37 C.F.R. 1.75 (d)(1) which states that the claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

Claims 2-14 are rejected as being dependent upon rejected base claim 1.

Response to Arguments

Applicant's arguments filed 6/1/2006 have been fully considered but they are not persuasive. The prior art references of Moore, Chatterjee, and Kim have been cited below to further teach Applicant's amendments.

As per claim 15, Applicant argues on page 10 of the response that Lu "does not describe another controller besides the RAID controller." The Examiner respectfully disagrees; a SCSI disk controller is taught in figure 1 of Lu. Applicant further argues that the Lu reference does not teach "the disk controller driver is adapted to provide RAID specific device IDs for the plurality of disk." The Examiner respectfully disagrees and cites the prior art references of Moore and Kim to teach inherent features not specifically discussed in Lu.

As the Applicant has not specifically argued the rejections of dependent claims 16-24, the previously applied rejection to the claims, as filed on 12/2/2005 by Examiner Jon Barton, have been maintained and included below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15-19, 21-24, and 27, are rejected under 35 U.S.C. 102(e) as being anticipated by Lu (2004/0073747). The prior art references of Moore (U.S. Patent Application Publication No. 2004/0003135) and Kim (U.S. Patent Application Publication No. 2002.0069245) are being cited simply to teach inherent features not explicitly discussed in Lu.

As per claim 15, Lu teaches an integrated circuit (combination of CPU 101, that runs the software of the RAID controller - ¶31, and chipsets 106,108, and 110) that performs core logic of the computer, where the integrated circuit comprises a RAID controller (computer-implemented software program - ¶31) that induces the OS to load a RAID class driver (functions and routines that comprise the software program of the RAID controller that implements all of the functionality such as adding a removing and reconfiguring the disk of Lu into a RAID system) having a physical device object representing a RAID system comprised of a plurality of disks (¶13).

Lu also teaches a first disk controller 110 adapted to interface with at least a portion of the plurality of disks (shown in figure 1 as interfacing with two of the three disks of RAID system 138 - ¶33) and to induce the OS to load a disk controller driver. Lu does not specifically teach the details of device driver enumeration, but the prior art reference of Kim teaches typical

device drive enumeration for a disk controller driver (i.e. port driver, as the port driver is responsible for performing the actual disk I/O operations - ¶108 - and refer to figure 22 and the connection between the port elements 643-644 and disk elements 645-648). The prior art reference of Moore supports the teachings of Kim as being well known in the art, as taught in ¶6. Because the disk controller (110 of Lu) is responsible for accessing the disks connected to SCSI bus 109A, it is necessarily inherent that the system of figure 1 of Lu load a disk controller driver (port driver) so that the CPU could have accessed the SCSI drives.

Because RAID-specific device identifications (combination of the RAID disk group number and each disk drives own ID - ¶18) are acquired during initialization from the disk drives themselves (figure 4) and because a disk controller driver must be loaded in order to access I/O data from a particular disk (as discussed in Moore and Kim), it can be seen that the disk controller driver indirectly provides RAID-specific device identification for the portion of the plurality of disks. In other words, in order to access the RAID-specific IDs from the respective portion of the disk drives, the disk controller driver must be called to interface with the respective disk drive (¶6 of Moore and ¶108 of Kim).

As per claim 16, Lu discloses the physical device object representing the RAID system is adapted to provide a standard disk device identification to an operating system (¶ 37).

As per claim 17, Lu discloses in response to receiving a request to write a data block to RAID system, the RAID class driver is adapted to mirror the data block on at least a portion of the plurality of disks via the associated functional device objects (¶ 8, ¶ 35).

As per claim 18, Lu discloses in response to receiving a request to write a first and second data block to RAID system, the RAID class driver is adapted to write via the associated

functional device objects the first data block to a first portion of the plurality of disks and to write via the associated functional device objects the second data block to a second portion of the plurality of disks (¶ 7 & 9, ¶ 35).

As per claim 19, Lu discloses in response to receiving a request to write a first and second data block to RAID system, the RAID class driver is adapted to write via the associated functional device objects an error correction block to a portion of the plurality of blocks (¶ 9 & 10, ¶ 35).

As per claim 21, Lu discloses the RAID class driver is adapted to configure the physical device object representing a RAID system according to RAID configuration data stored in a computer system configuration memory (¶ 18, 42).

As per claim 22, Lu discloses adapted to interface with a second disk controller, wherein the second disk controller adapted to interface with at least a second portion of the plurality of disks and further adapted to induce the operating system to load a second portion of the plurality of disk and further adapted to induce the operating system to load a second disk controller driver (¶ 31), wherein the second disk controller driver is adapted to provide RAID-specific device identifications for the second portion of the plurality of disks (¶ 42).

As per claim 23, Lu discloses including a second disk controller adapted to interface with at least a second portion of the plurality of disks (¶ 31); and further adapted to induce the operating system to load a second disk controller driver (¶ 31, 32), wherein the second disk controller driver is adapted to provide RAID-specific device identifications for the second portion of the plurality of disks (¶ 42, 18).

As per claim 24, Lu discloses a first portion of the plurality of disks is associated with a first disk controller of a first type and a second portion of the plurality of disks is associated with a second disk controller of a second type (¶ 31).

As per claim 27, the second type is a controller 106 for external iSCSI disks (figure 1 of Lu).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1,3-10,13,28-30, and 32-34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent Application Publication No. 2004/0073747) in view of Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in further view of Moore (U.S. Patent Application Publication No. 2004/0003135). Further, the prior art reference of Kim (U.S. Patent Application Publication No. 2002/0069245) is being cited to simply teach inherent features not otherwise discussed by Lu.

As per claim 1, Lu teaches a RAID class driver (RAID software - ¶13 and ¶21) for use with a plurality of disks (connection to IDE, iSCSI, and SCSI buses as shown in figure 1) to implement a RAID with a disk drive group (such as group 138). Lu teaches in ¶33 that a volume is a logical disk drive that represents portions of a disk drive group seen by the host OS as a single drive. Further Lu teaches in ¶34 that a particular disk drive group may comprise a single

volume. Thus it can be seen that if a user wished, the combination of physical disk drives of disk group 138 could be a RAID system and seen as a single logical drive or volume to the host OS. Lu does not specifically teach the RAID driver including a first physical device object (PDO) representing a RAID system comprised of a plurality of disks (such as disk group 138). Chatterjee teaches in ¶42 that logical drives can be enumerated and accessed as disk PDOs. Further Chatterjee teaches the advantages of redundant controllers in ¶7. The RAID system of Lu only teaches using a single controller (¶13); therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the RAID system of Lu with the teaching of controller redundancy of Chatterjee in order to have prevented down time when the controller of Lu would fail.

With the entire teachings of Chatterjee, it would have been seen by one of ordinary skill in the art that single volume comprising the arrayed set of disk of disk group 138 of Lu (discussed above) would have been represented by a first PDO.

Modified Lu does not specifically teach a plurality of functional device objects (FDOs) each associated with one disk and adapted to interface with a second physical device object (PDO). Moore teaches in ¶29 that PDOs and FDOs comprise the device layer of disk drives; Moore also teaches in ¶¶28-29 that before accessing a disk drive, a respective PDO/FDO combination must be created before the system may access the disk drive's data. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the modified RAID system of Lu with the teaching of utilizing FDOs and PDOs in order to have been able to properly access any new disk drives that are installed or added to the plurality of disk drives as shown in figure 1 of Lu.

Figure 5 of Moore shows a plurality of FDOs 510, each associated with one disk and interfaced with a second PDO 515 (as the first PDO is used to represent the collection of the entire RAID system as viewed by the host system as a single volume as previously discussed). The second PDO interfaces with the controller layer (represented in Moore by a USB controller 530-535, but would have been seen by one of ordinary skill in the art to have been any disk drive controller). With the teachings of Moore, it could have been seen by Lu that the second PDO provides RAID-specific device identification (combination of RAID disk group ID and each drives own ID - ¶18 of Lu) since the RAID-specific device ID is contained on the disks themselves (figure 4 and ¶42) and the respective second PDO must be utilized in order to access data on a particular disk drive to obtain the RAID-specific device ID (¶29 of Moore).

As per claim 3, the first physical device object (¶42 of Chatterjee teaches that logical volumes may are exposed to the OS using physical device objects) representing the RAID system 138 (as the disk group may comprise one volume - ¶34 of Lu) is adapted to provide a standard disk device identification (as physical device objects are utilized as such as shown in figure 5 of Moore) to an operating system. This could have been seen by one having ordinary skill in the art as Lu states in ¶33 that a volume is seen by an OS as a single drive. In other words the standard device identification to the OS could simple be the designated drive letter of the volume.

As per claim 4, the RAID driver is adapted to combine each disk into a RAID system as shown in figure 1 of Lu. Each disk of disk group 138 is combined to for a RAID - ¶33.

As per claim 5, the RAID class drive is adapted to mirror a written data block on at least a portion of the plurality of disk (disk group 138), as a disk group may be organized as RAID

level 1 (¶35), which is also known as RAID mirroring - ¶8. The functional device objects for the associated disk drives would have been utilized as the FDOs represent the disk drive to the function driver (¶29 of Moore), which in turn is responsible for providing a software interface to the particular device and is called for transferring data (¶6 of Morre), such as during a mirroring write operation.

As per claim 6, a first and second write request of data blocks may be made to different portions of the plurality of disks (such as the disk within RAID disk group 138) during a striped write when the disk drive group is configured as a RAID-0 system (¶7 and ¶35 of Lu). The FDOs would have been utilized to perform the writing as discussed above in the rejection of claim 5.

As per claim 7, in response to receiving a request to write a first and second data block to a plurality of disk (disk group 138), the RAID driver is adapted to write via the FDOs an error correction (parity) block to a portion of the plurality of disk when the disk drive group 138 is configured as a RAID-5 system (¶35 of Lu). RAID-5 incorporates parity calculation for data redundancy - ¶9 of Lu. The FDOs for the respective disks to be written to would have been utilized to perform the writing of the parity block as discussed above in the rejection of claim 5.

As per claim 8, the RAID controller (which may be hardware - ¶13) or may be software running on the CPU 101 (¶31) would comprise both a RAID controller FDO and a RAID controller PDO as controller drivers are enumerated as such as shown in figure 5 of Moore (in this case as a USB controller). Chatterjee shows in figure 5 a controller FDO in Controller 0's miniport driver 506 interfaced to a controller PDO within PCI driver 510. The PDO representing the RAID system (i.e. logical volume of the disk group 138 of modified Lu) would therefore be

seen as a child of RAID controller's FDO in the driver layer hierarchy of the system of figure 1 of modified Lu as in order to implement the drive itself as a RAID drive, the RAID controller must be accessed as shown in the flow diagram of figure 5 of Moore (it should be noted that even though figure 5 of Moore does not show a logical volume being represented with a PDO, the Examiner is citing the Chatterjee reference to teach such a limitation).

As per claim 9, since the data area shown in figure 4 of Lu contains disk group info for a particular RAID group, the Examiner is considering the respective area of each disk drive of the system of Lu that contains such configuration data to be --computer system configuration memory--. The RAID driver is adapted to configure the PDO representing the RAID system (single volume) based on the configuration data as taught in ¶41 of Lu.

As per claims 10 and 30, the first portion of the plurality of disk is associated with a first disk controller (IDE controller 108) and the second potion of the plurality of disk is associated with a second disk controller (SCSI controller 110) of a second type.

As per claim 13, the second type of controller may be for an external disk (iSCSI controller 106).

As per claim 28, the rejection follows the rejection for claim 1. A RAID-specific ID (combination of disk group ID and drive ID - ¶18) is received for each disk of a disk group (i.e. 138 of figure 1 of Lu) comprising the RAID system - ¶42. A RAID specific functional interface is "binded" (or used to access the disk drives of the disk drive group RAID system) to access each RAID disk as taught by Moore (figure 5 and ¶29) and Chatterjee (¶42). The disk of the RAID group are combined into a disk object (PDO - ¶42 of Chatterjee, as the RAID group may comprise a single logical volume -¶34 of Lu) that represents the entire RAID system. Further,

the OS is provided with a standard disk device ID via the disk object - ¶33 of Lu, as the logical volume may be seen as a single drive to the host OS.

As per clam 29, the rejection follows the rejection for claim 15, above. Lu does not specifically teach the details of device driver enumeration, but the prior art reference of Kim teaches typical device drive enumeration for a disk controller driver (i.e. port driver, as the port driver is responsible for performing the actual disk I/O operations - ¶108 - and refer to figure 22 and the connection between the port elements 643-644 and disk elements 645-648). The prior art reference of Moore supports the teachings of Kim as being well known in the art, as taught in ¶6. Because the disk controller (110 of Lu) is responsible for accessing the disks connected to SCSI bus 109A, it is necessarily inherent that the system of figure 1 of Lu load a disk controller driver (port driver) so that the CPU could have accessed the SCSI drives.

Because RAID-specific device identifications (combination of the RAID disk group number and each disk drives own ID - ¶18) are acquired during initialization from the disk drives themselves (figure 4) and because a disk controller driver must be loaded in order to access I/O data from a particular disk (as discussed in Moore and Kim), it can be seen that the disk controller driver indirectly provides RAID-specific device identification for the portion of the plurality of disks. In other words, in order to access the RAID-specific IDs from the respective portion of the disk drives, the disk controller driver must be called to interface with the respective disk drive (¶6 of Moore and ¶108 of Kim). Therefore, it could have been seen that the RAID-specific device ID is received from one or more disk controllers, wherein the disk controller is adapted to interface with at least a portion of the plurality of disks (as shown in figure 1 of Lu).

As per claim 32, as taught by Moore in figure 5 and ¶¶6,28-29, and further by Kim (¶108 and figure 22), once a system is initialized and a RAID controller is identified, the associated driver that corresponds to the controller must be initialized in order for the controller to perform its functions. In the case of Lu, the RAID controller may be hardware (¶13) or software (driver) running on a system CPU 101 and memory 103 (¶31).

As per claim 33, the RAID controller comprises hardware (¶13), or if the controller is software-based, it may comprise the hardware of system memory 103 and CPU 101 (¶31).

As per claim 34, a standard disk driver object (PDO) is loaded to interface with the disk object (¶42 of Chatterjee) thereby enabling transparent access to the RAID system as the entire RAID volume may be visible as a single logical drive (¶33 of Lu).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent Application Publication No. 2004/0073747) in view of Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in further view of Moore (U.S. Patent Application Publication No. 2004/0003135), as applied to claims 1,3-10,13,28-30, and 32-34 above, in further view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975).

As per claim 11, Lu discloses using various types of controllers for the first and second controllers, such as an SCSI controller (¶¶31-32), but fails to specifically disclose an EIDE controller.

Frank teaches an EIDE controller (¶7). It would have been obvious to one of ordinary skill in the art to have used the EIDE controller taught by Frank in the RAID control system of Lu because both inventions involve methods of controlling a RAID system using various

controller and disk types and the EIDE taught by Frank et al. is an improvement over the standard IDE disclosed by Lu.

As per claim 12 teaches the first type of controller being a serial ATA type controller and the second type being a parallel ATA type (¶7).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent Application Publication No. 2004/0073747) in view of Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in further view of Moore (U.S. Patent Application Publication No. 2004/0003135), as applied to claims 1,3-10,13,28-30, and 32-34 above, in further view of Brantley Jr. et al. (U.S. Patent No. 5,163,149).

As per claim 14, Lu does not teach the RAID class driver being adapted to optimize data access by combining separate data access operations associated with a disk of the RAID system into a single data access operation. Brantley teaches such a concept in [1/24-29]. It would have been obvious to one of ordinary skill in the art to have combined the access combination of Brantley with the RAID control system of Lu because both systems involve access to a memory and the combined access method improves the access time (Brantley - [1/32-39]).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent Application Publication No. 2004/0073747), as applied to claims 15-19, 21-24, and 27, above, in view of Gajjar (U.S. Patent No. 5,787,463).

As per claim 20, Lu discloses the base claim 19, but fails to specifically disclose that the integrated circuit is adapted to determine the value of an error correction block from the first and

second data block. Gajjar teaches such in (Col. 4 Lines 5-9). It would have been obvious to one of ordinary skill in the art to combine the error correction method of Gajjar with the RAID/parity method of Lu because Lu already utilized a parity error correction method, and the method of Gajjar is a common method of calculating this parity information.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent Application Publication No. 2004/0073747), as applied to claims 15-19, 21-24, and 27, above, in view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975).

As per claim 25, Lu discloses using various types of controllers for the first and second controllers, such as an SCSI controller (¶ 31, 32), but fails to specifically disclose an EIDE controller. Frank teaches an EIDE controller (¶ 7). It would have been obvious to one of ordinary skill in the art to have used the EIDE controller taught by Frank et al. in the RAID control system of Lu because both inventions involve methods of controlling a RAID system using various controller and disk types and the EIDE taught by Frank is an improvement over the standard IDE disclosed by Lu.

As per claim 26, Frank teaches the first type is a serial ATA type controller and the second type is a parallel ATA type (¶7).

Allowable Subject Matter

Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As per claim 31, the prior art of record does not teach, either alone or in combination, obtaining the RAID-specific device ID for each disk of the RAID system from a CMOS configuration.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached on M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shane M. Thomas

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